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December 12, 2017

# Pull-Based Casting Of Media Content Items

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### Recommended Citation

Price, Thomas and Lewis, Justin, "Pull-Based Casting Of Media Content Items", Technical Disclosure Commons, (December 12, 2017)

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## **PULL-BASED CASTING OF MEDIA CONTENT ITEMS**

### **ABSTRACT**

Disclosed herein is a mechanism for transferring the playback of media content from a user device to a media device. A media content item can be presented on a user device, and a media device can receive an input from a user indicating that the playback of the media content item is to be transferred from the user device to the media device. The media device can record ambient sounds that may include audio content corresponding to the media content item being presented on the user device, and can transmit the recorded ambient sounds to a server for identification. The server can identify a media content item corresponding to the recorded ambient sounds received from the media device and can determine whether the identified media content item matches the media content item being presented by the user device. The server can additionally determine whether the user device and the media device are located near or proximal to each other. In response to determining that the identified media content item matches the media content item being presented by the user device and determining that the user device and the media device are located near each other, the server can cause the playback of the media content item to be transferred from the user device to the media device.

### **BACKGROUND**

Users frequently want to transfer playback of a media content item, or cast the media content item, from a user device (e.g., a mobile phone, a tablet computer, etc.) to a media device (e.g., a television, speakers, etc.). For example, a user may begin playing music or a video from a mobile device and may want to cast the music or the video to a media device located nearby, such as to nearby speakers or a nearby television. Casting media content from a mobile device to

a media device typically involves connecting both the mobile device and the media device to the same local network (e.g., a home WiFi network, etc.), opening an application on the mobile device to begin playing the media content item, and selecting an icon or other suitable indicator from the application to transfer the playback of the media content item to the media device. This process, however, can be time-consuming for the user. Thus, there is a need for a better approach to transfer the playback of media content to a media device.

### DESCRIPTION

The systems and techniques described in this disclosure relate to transferring the playback of media content (e.g., videos, music, and/or any other suitable type of audio content) from a user device (e.g., a mobile phone, a tablet computer, a wearable computer, a laptop computer, a desktop computer, and/or any other suitable type of user device) to a media device (e.g., speakers, a television, a projector, a vehicle entertainment or information system, and/or any other suitable type of media device) located nearby. The system can be implemented on a user device and a media device located near each other and a server.

FIG. 1 is an illustrative example of an information flow diagram 100 for transferring the playback of a media content item from a user device to a media device via a server.

At step 102, a user device (e.g., a mobile phone, a tablet computer, a wearable computer, a desktop computer, and/or any other suitable type of user device) can begin presenting a media content item (e.g., a video, a television program, a movie, music, an audiobook, live-streamed audio or video content, and/or any other suitable type of media content). The media content item can be selected for presentation in any suitable manner, such as by a user of the user device selecting a media content item that is stored locally on the user device, through a subscription service or media content sharing service that allows a user to stream media content to the user

device, and/or in any other suitable manner. In instances where the presentation of the media content item is through a subscription service or media content sharing service, the user device may be authenticated to a server associated with the subscription service or the media content sharing service, for example, through a user account corresponding to the service that is logged in to on the user device.

At step 104, a media device can receive an input to transfer the playback of the media content item being presented by the user device to the media device. For example, the input can be a push of a physical button associated with the media device (e.g., a button on a speaker, television, virtual assistant device, etc.).

At step 106, in response to receiving the input to transfer playback of the media content item, the media device can detect ambient sound using a microphone associated with the media device and can transmit the detected ambient sound to a server. The detected ambient sound can include, for example, audio content associated with the media content item being presented by the mobile device, as described above in connection with step 102. The ambient sound can be transmitted to the server as a stream of data chunks, and/or in any other suitable manner.

Additionally, the media device can transmit location information to the server that indicates a location of the media device. The location information can include, for example, Global Positioning System (GPS) coordinates of the media device, identifiers of detected networks (e.g., WiFi networks, BLUETOOTH networks, and/or any other suitable type of networks), identifiers of other devices connected to the same local network (e.g., a WiFi network, a BLUETOOTH network, and/or any other suitable type of network), location information determined by Internet Protocol (IP) triangulation of a network the media device is connected to, and/or any other suitable location information. In instances where the location information includes GPS

coordinates, the media device can determine the GPS coordinates using any suitable techniques, such as by using GPS coordinates of a user device used when initializing the media device at an initial setup time.

At step 108, the user device can transmit location information to the server. For example, the location information can include identifiers of detected networks (e.g., WiFi networks, BLUETOOTH networks, and/or any other suitable type of network), GPS coordinates of the user device, identifiers of detected devices connected to the same network as the user device, and/or any other suitable location information. Additionally, the user device can transmit identifying information and/or timing information related to the media content item being presented by the user device. For example, the identifying information can include a name of the media content item, a location or filename corresponding to the media content item, and/or any other suitable identifying information. As another example, the timing information can include a current time point of presentation of the media content item, and/or any other suitable timing information.

At step 110, the server can determine if there is a match between the detected audio content transmitted by the media device (as described above in connection with step 106) and the media content being presented by the user device. For example, the server can identify a media content item corresponding to the audio content transmitted by the media device by matching the audio content to an audio signature from a corpus of media content items using any suitable audio fingerprint matching technique(s). The server can then determine if the identified media content item corresponding to the audio content detected by the media device matches a media content item known to be being presented by the use device. Additionally, the server can determine if the media device and the user device are located near each other using the location

information received from the media device (at step 106) and the location information received from the user device (at step 108).

At step 112, if the server determines that the audio content detected by the media device corresponds to the media content item being presented by the user device and that the media device and the user device are located near each other, the server can transfer playback of the media content item to the media device. For example, the server can transmit instructions to the user device to stop presenting the media content item. As another example, the server can transmit instructions to the media device to begin presenting the media content item at the current playback position. More particularly, the instructions transmitted to the media device can include a location of a file corresponding to the media content item and the current playback position at which the media device is to begin presenting the media content item. Additionally or alternatively, the server can begin streaming the media content item to the media device.

At step 114, in response to receiving instructions from the server, the media device can begin presenting the media content item.

In some instances, the user device can present a user interface that can allow a user of the user device to cancel or undo the transfer of playback of the media content item to the media device. For example, selection of a button on the user interface can cause the user device to resume presenting the media content item.

Note that, in instances where the media content item is a video content item (e.g., a television show, a movie, a video, and/or any other suitable type of video content item) that includes corresponding audio content, the media device can begin presenting both the video content and the corresponding audio content of the media content item without requiring a

separate input at the media device to transfer playback of each of the video content and the audio content.

Accordingly, a mechanism for transferring the playback of media content from a user device to a media device is provided.

### DRAWING

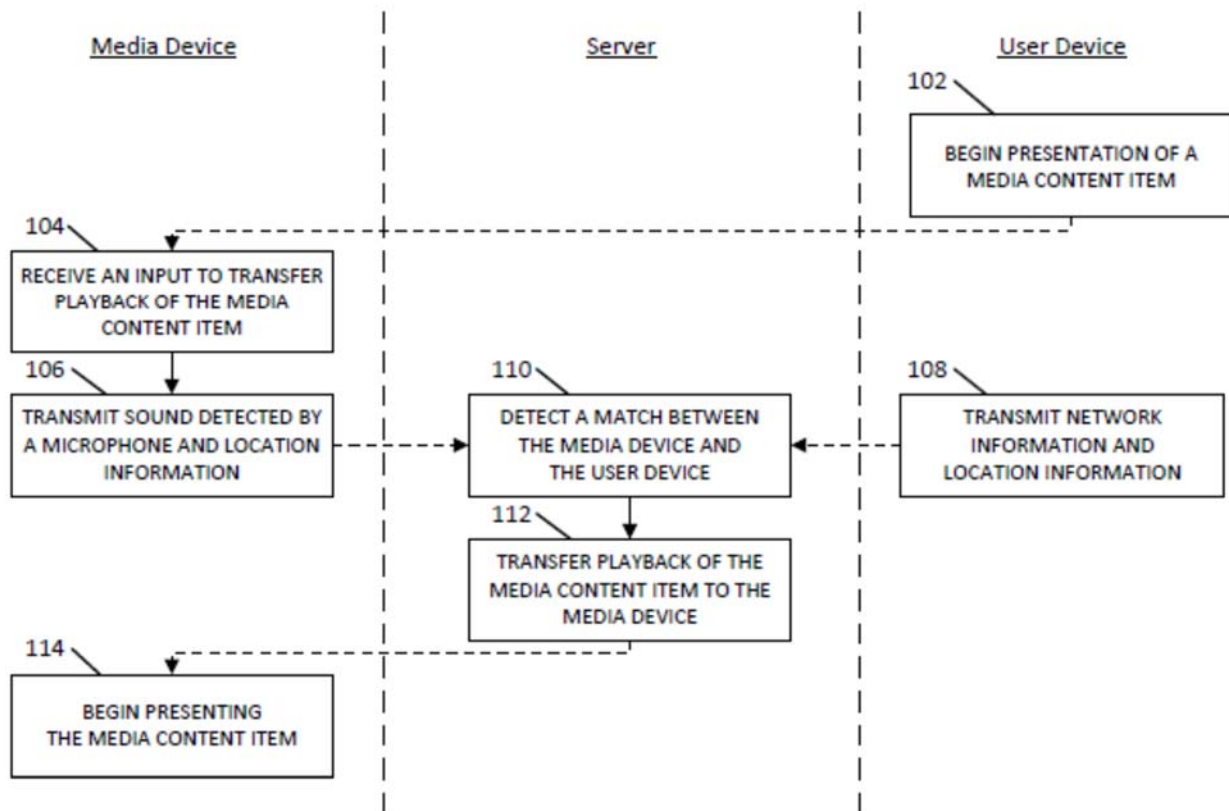


FIG. 1